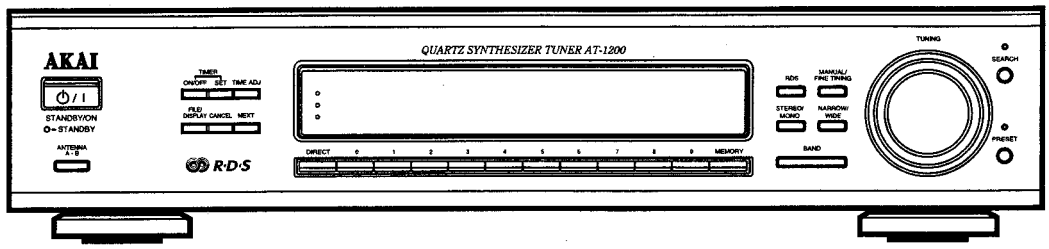
AKAI SERVICE MANUAL



FM/MW/LW STEREO TUNER

SPECIFICATIONS MODEL AT-1200

FM

Frequency Range : 87.50 MHz ~ 108.00MHz
(50kHz Step: Manual)
(10kHz Step: Fine)

Usable Sensitivity (S/N 30dB): 1.2μV

Total Harmonic Distortion (1kHz)
MONO : 0.08%
STEREO : 0.15%

S/N Ratio(IHF)
MONO : 80dB
STEREO : 75dB

Frequency Response : 20Hz ~ 15kHz
+0.5 ~ -3.0dB

AM Suppression : 60dB

Separation(1kHz) : 50dB

LW

Frequency Range : 146kHz ~ 290kHz
(1kHz Step: Manual)
(9kHz Step: Auto)

Usable Sensitivity (S/N 20dB): 60dB
S/N Ratio : 45dB

Total Harmonic Distortion (400Hz): 1%

MW

Frequency Range : 522kHz ~ 1620kHz
(9kHz Step)

Usable Sensitivity (S/N 20dB): 50dB

S/N Ratio : 45dB

Total Harmonic Distortion(400Hz): 0.8%

GENERAL

Power supply : AC 230V, 50Hz
Power consumption : 9W
Dimensions(W×H×D): 430×96×336mm
Weight(net) : 3.8kg (net)

Standard accessories

Audio Signal connection cord 1
Remote control connection cord 1
FM Antenna 1
AM Antenna 1
Operator's manual 1

* For improvement purposes, specifications and design are subject to change without notice.

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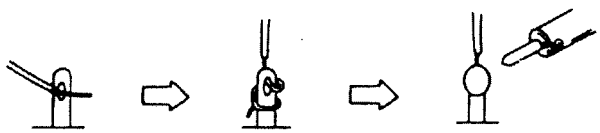
CONTENTS

SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identifide by the ⚠ (*)symbol parts are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specifide replacements.
   Examples :RF converters, tuner units, antenna selectswitches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially :
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers(insulating barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing micro switches
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Make sure that wires to do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Make sure that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can.

Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.

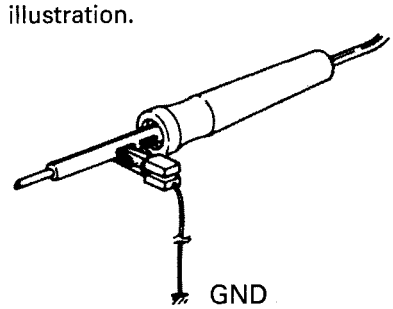
SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.
The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resister of 1500 ohms paralleled with a 0.15 μF capacitor, under the unit's normal working conditions.
The leakage-current should be less than 0.5mA rms AC. The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2M Ohms.

PRECAUTIONS IN REPAIRING

When repairing or adjusting the unit, please note the following points.

1. Do not put excessive pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
2. When the base is removed for repair adjustment, make sure that there are no metal obiects in the narrow gap between the P. C. board or the mecha parts and the base
3. The Micro-Computer and the CD signal processing ICs can be damaged by static electricity or leakage from a soldering iron during repairing. While soldering, please take the precautions against leakage as in the illustration.



4. Do not loosen any screws in the pick-up block. When handing the pick-up block, please refer to the points to NOTE when replacing the pick-up block.
5. Keep safety for hazardous invisible Laser Radiation, DO NOT watch the Laser Beam (Objective lens) directly.
6. Models for some countries, laser warning labels are affixed on the unit and inside of the unit, as shown below. Read it carefully for your safety, when repairing or adjusting the unit.

INFORMATION

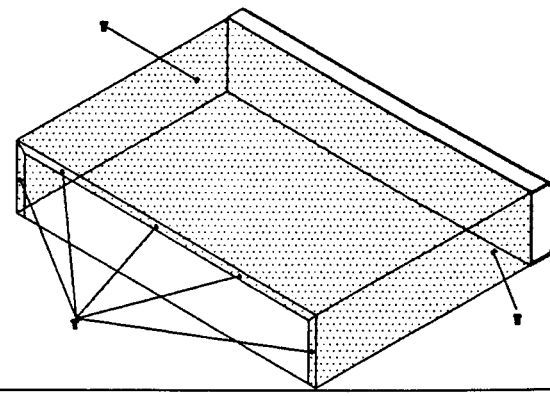
SYMBOLS FOR PRIMARY DESTINATION

Primary destination of units are indicated with the following alphabet.

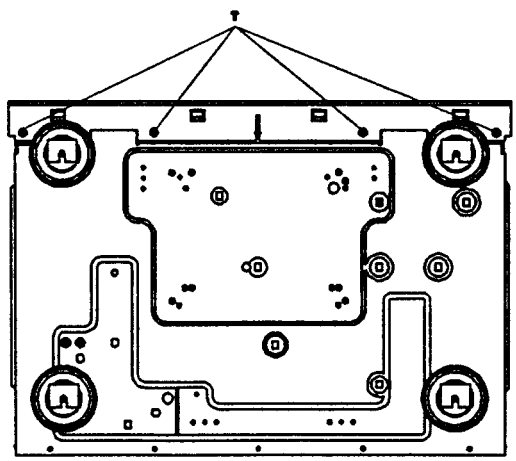
Symbols	Principal Destinations
B	UK
E	Europe (except UK)
S	Australia
U	Universal Area
Y*	Custom version

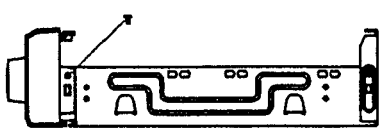
DISASSEMBLY

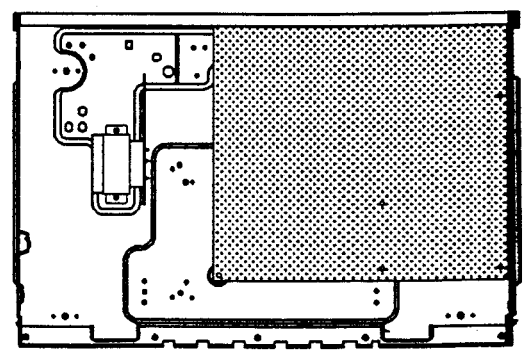
1)ROMOVAL OF TOP COVER



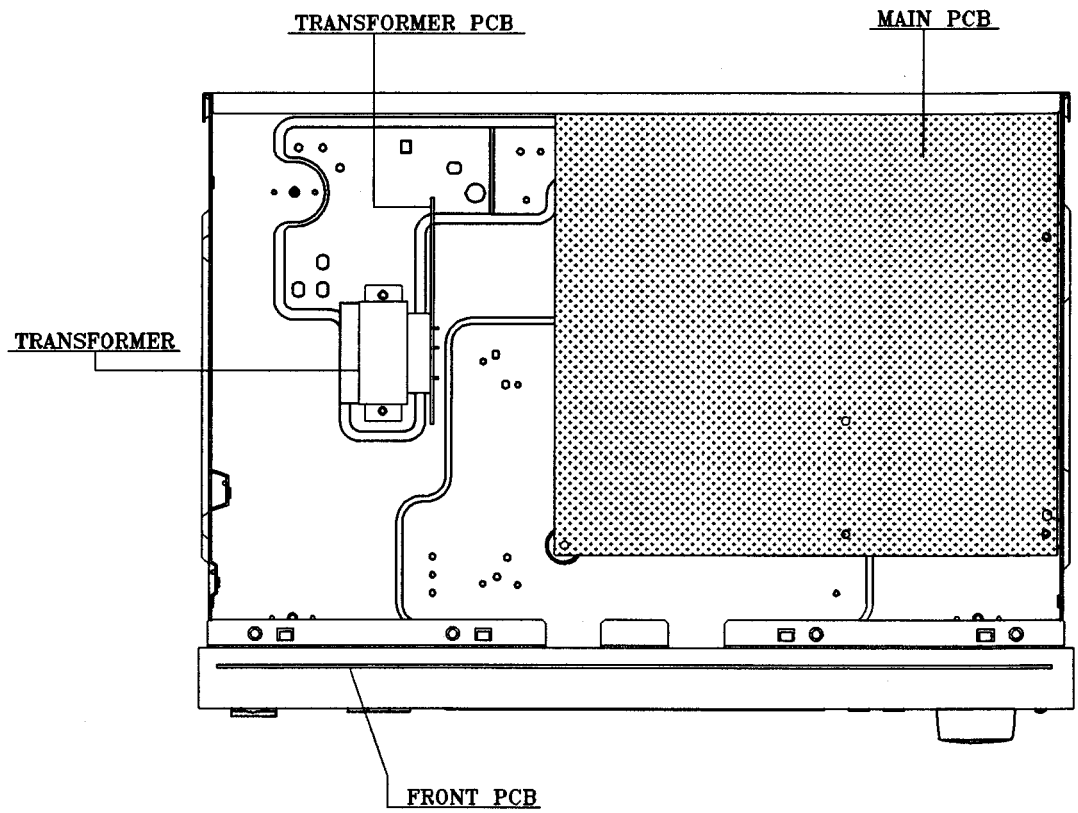
2)ROMOVAL OF FRONT PANEL







PRINCIPAL PARTS LOCATION



■ ALIGNMENT INSTRUCTIONS

EQUIPMENT NEEDED:

AM Signal Generator
FM Signal Generator
Oscilloscope
VTVM(AC, DC)
Test loop antenna (MW Adjustment)
Dummy antenna (FM Adjustment)
Stereo signal modulator (RDS IN)
Frequency counter
Distortion analyser

IMPORTANT

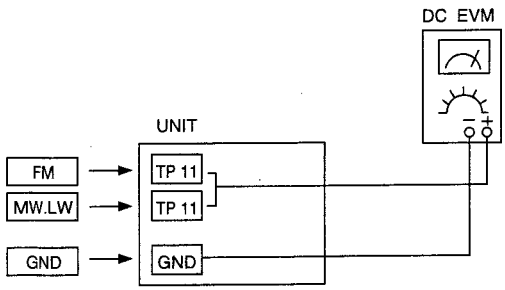
1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency.

Item / Band	Modulation	Modulation frequency
MW/LW	30%	400Hz
FM	100%(75kHz Dev.)	400Hz

MEASUREMENTS AND ADJUSTMENTS

1. FM, MW/LW TRACKING VOLTAGE ADJUSTMENTS

(FM) DC VOLTMETER ·····CONNECT TO TEST POINT TP11 and GND
(MW, LW) DC VOLTMETER ·····CONNECT TO TEST POINT TP11 and GND

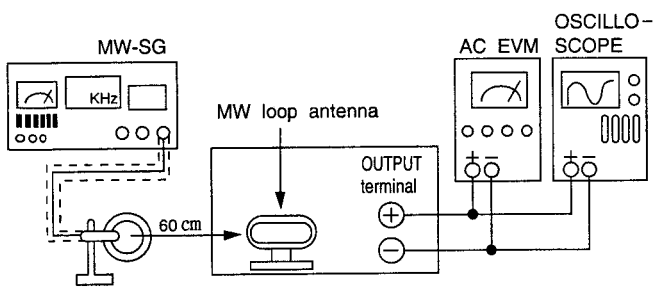


No	Band	Frequency	Adjust for	Adjustment
1	FM	87.50MHz	1.6V	L7
2	MW	522kHz	1V	L204
3	LW	146kHz	1.3V	L205

2. MW/LW RF ADJUSTMENTS

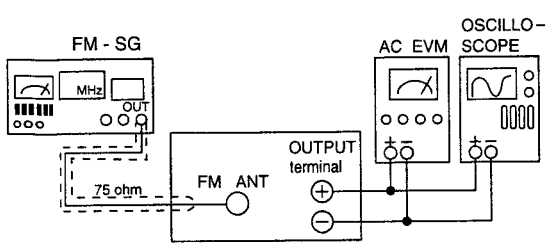
Signal Generator ·····Connects to the MW Ant. Coil through the loop antenna.
Adjust for the indication of VTVM of the wave form of scope to be maximum.

BAND	Step	Frequency	Adjust for	Adjustement
MW	1	612kHz	Maximum sensitivity	L202, T201, T202
	2	1503kHz	Mzximum sensitivity	CT21
	3	Repeat steps 1 and 2 several times		
LW	1	164kHz	Maximum sensivtivity	L203
	2	272kHz	Maximum sensitivity	CT22
	3	Repeat steps 1 and 2 several times		



3. FM-RF ADJUSTMENT

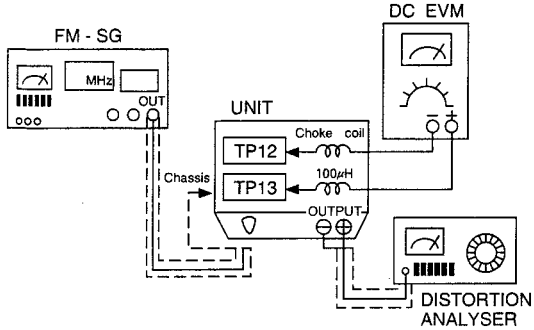
Signal Generator·····Connect to FM ANT JACK (FM IN) through the dummy.



No	Frequency	Adjust for	Adjustment
1	90.10MHz	Maximum Sensitivity	L2, L5, L6
2	Repeat step 1 several times		

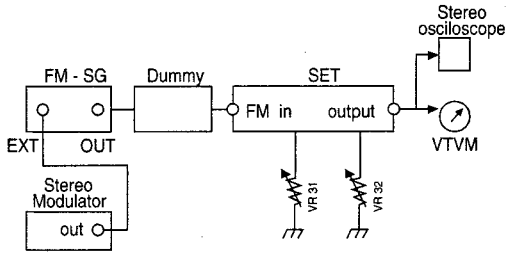
4. FM MONO DISTORTION ADJUSTMENT

DC VOLT METER ·····Connect to TP12(-), TP13(+) Through the choke coll (100μH)
Signal Generator ·····Connect to FM ANT Jacek (FM IN) through the dummy.
Distortion Meter ·····Connect to the output.



No	Frequency	Adjust for	Adjustment
1	100.10MHz	DC Voltmeter 0V	T101
2	100.10MHz	Minimum T. H. D	T102
3	Repeat steps 1 and 2 Several times.		

5. FM STEREO SEPARATION (WIDE/NARROW) ADJUSTMENT



Pilot signal	Adjust for	Adjustment
ON	Different of R and L must be maximum	VR31(WIDE) VR32(NARROW)

NOTE : In case of adjusting the stereo separation, of input is L (or R) channel, R (or L) channel must be maximum.

6. FM/MW(LW) AUTO STOP LEVEL ADJUSTMENT

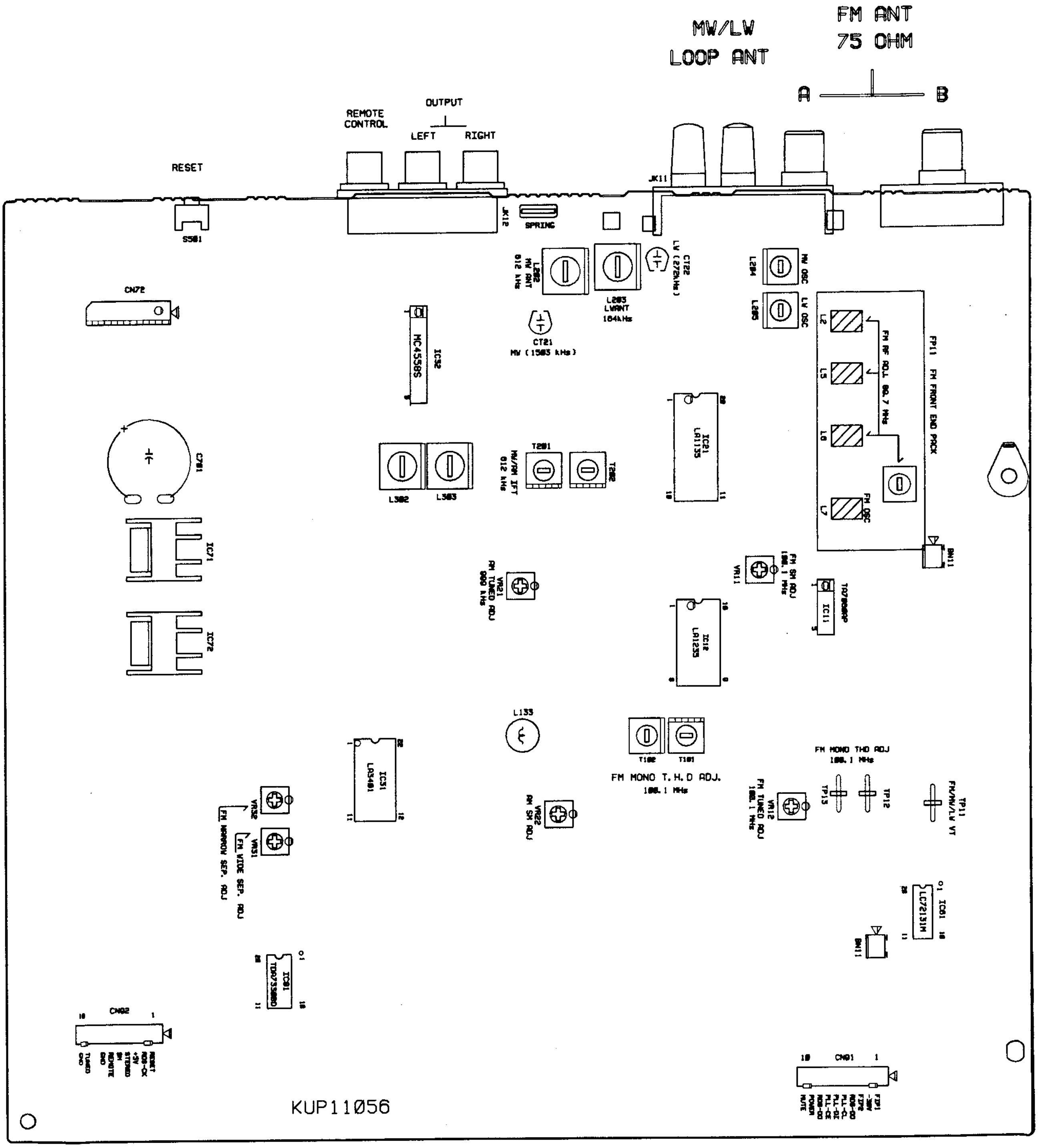
FM SIGNAL GENERATOR ·····Connec to FM ANT Jack(FM IN)through the dummy
MW(LW) SIGNAL GENERATOR·····Connect to MW ANT, Coil through the Loop antenna

BAND	STEP	SIGNAL GENERATOR	Adjust for	Adjustment
FM	1	100.1MHz 35dB	TUNED Display OFF	VR11
	2	100.1MHz 35dB	TUNED Display ON	VR11
MW(LW)	1	999kHz 80dB	TUNED Display OFF	VR21
	2	999kHz 80dB	TUNED Display ON	VR21

7. FM/MW(LW) SIGNAL METER LEVEL ADJUSTMENT

FM SIGNAL GENERATOR ·····Connect to FM ANT Jack(FM IN) through the dummy
MW(LW) SIGNAL GENERATOR·····Connect to MW ANT, Coil through the Loop Antenna

BAND	SIGNAL GENERATOR	Adjust for (signal level)	Adjustment
FM	100.1MHz 66dB	Signal level : 59~61dB FM(ANT A) IN	VR12
MW(LW)	999kHz 100dB	Signal level : 75~80dB	VR22



MW/LW
LOOP ANT
FM ANT
75 OHM
A
B
REMOTE CONTROL
OUTPUT
LEFT
RIGHT
RESET
SPRING
FM FRONT END PACK
FM MONO T.H.D ADJ.
FM NARROW SEP. ADJ
FM WIDE SEP. ADJ
MC4558S
KUP11056

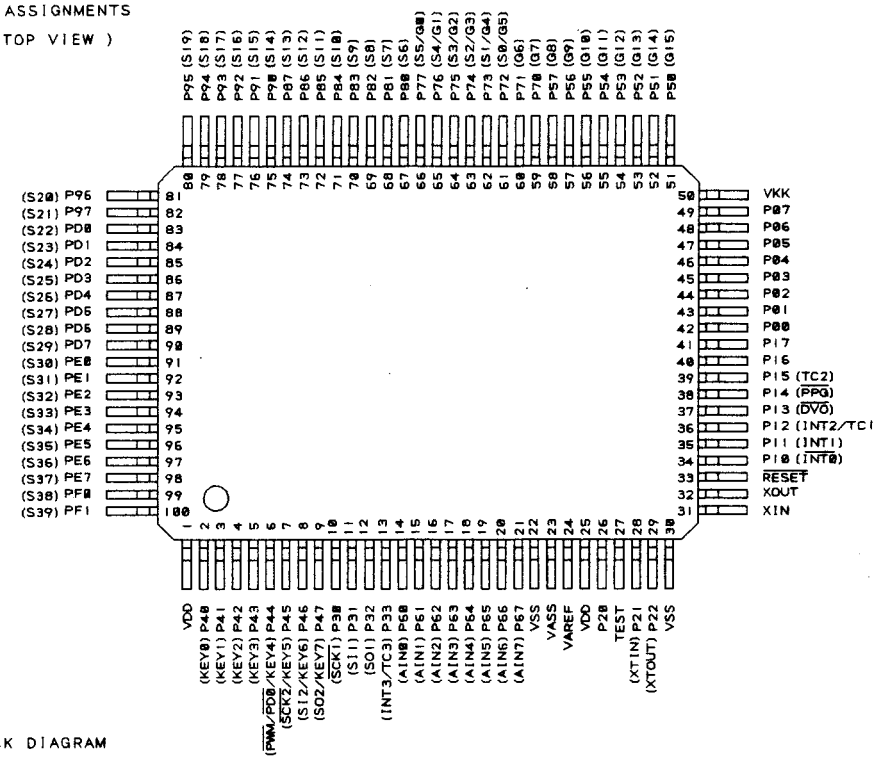
IC(μ-COM) PIN FUNCTION

NO.	SYMBOL	I/O	DESCRIPTION
1	VDD	I	+4.8V
2~8	KEY 0~7	I	KEY MATRIX IN
9	NC	-	NOT USED
10~13	KEY 8~11	O	KEY MATRIX OUT
14	P60 (SM IN)	I	SIGNAL METER LEVEL IN
15	P61 (SD IN)	I	TUNED IN PORT
16	P62 (ST IN)	I	STEREO IN PORT
17~21	AIN 0~4	I	AREA OPTION
22	VSS	I	GROUND
23	VASS	I	GROUND
24	VAREF	I	+4.8V
25	VDD	I	+4.8V
26	P20 (BACK-UP)	I	BACK-UP MODE CONTROL
27	TEST	I	GROUND
28	XT IN	I	32.768kHz CRYSTAL TIME OPERATOR
29	XT OUT	O	
30	VSS	I	GROUND
31	X IN	I	8.0MHz CRYSTAL μ-COM OPERATOR
32	X OUT	O	
33	$\overline{\text{RESET}}$	I/O	RESET SIGNAL INPUT
34	NC	-	NOT USED
35	PI1/INTO (REMOTE IN)	I	REMOTE CONTROL IN
36	PI2 (RDS CL)	I	RDS CLOCK IN
37	PI3 (RDS DATA)	I	RDS DATA IN
38	PI4 (REMOTE OUT)	O	REMOTE CONTROL OUTPUT
39	NC	-	NOT USED
40	NC	-	NOT USED
41	NC	-	NOT USED
42	TUNING UP	I	TUNING UP/DOWN SWITCHING CONTROL
43	TUNING DOWN	I	
44	P02 (MUTE)	O	MUTE CONTROL OUTPUT
45	P03 (POWER ON/OFF)	O	POWER ON/OFF PORT
46	P04 (PLL IC DI)	I	PLL DATA IN
47	P05 (PLL IC CE)	O	PLL CE
48	P06 (PLL IC DO)	O	PLL DATA OUT
49	P07 (PLL IC CL)	O	PLL CLOCK
50	VKK	I	-30V
51~73	S0 ~ S23	O	SEGMENT OUTPUT
74	NC	-	NOT USED
75~87	G1~13	O	GRID OUTPUT
88~90	NC	-	NOT USED
91	PE0 (ANT A LED)	O	ANT A LED CONTROL
92	PE1 (ANT B LED)	O	ANT B LED CONTROL
93	PE2 (FM WIDE / NARROW LED)	O	WIDE/NARROW LED CONTROL
94	PE3 (SEARCH MODE LED)	O	SEARCH MODE LED CONTROL
95	PE4 (PRESET MODE LED)	O	PRESET MODE LED CONTROL
96	PE5 (POWER LED)	O	POWER ON/STANDBY LED CONTROL

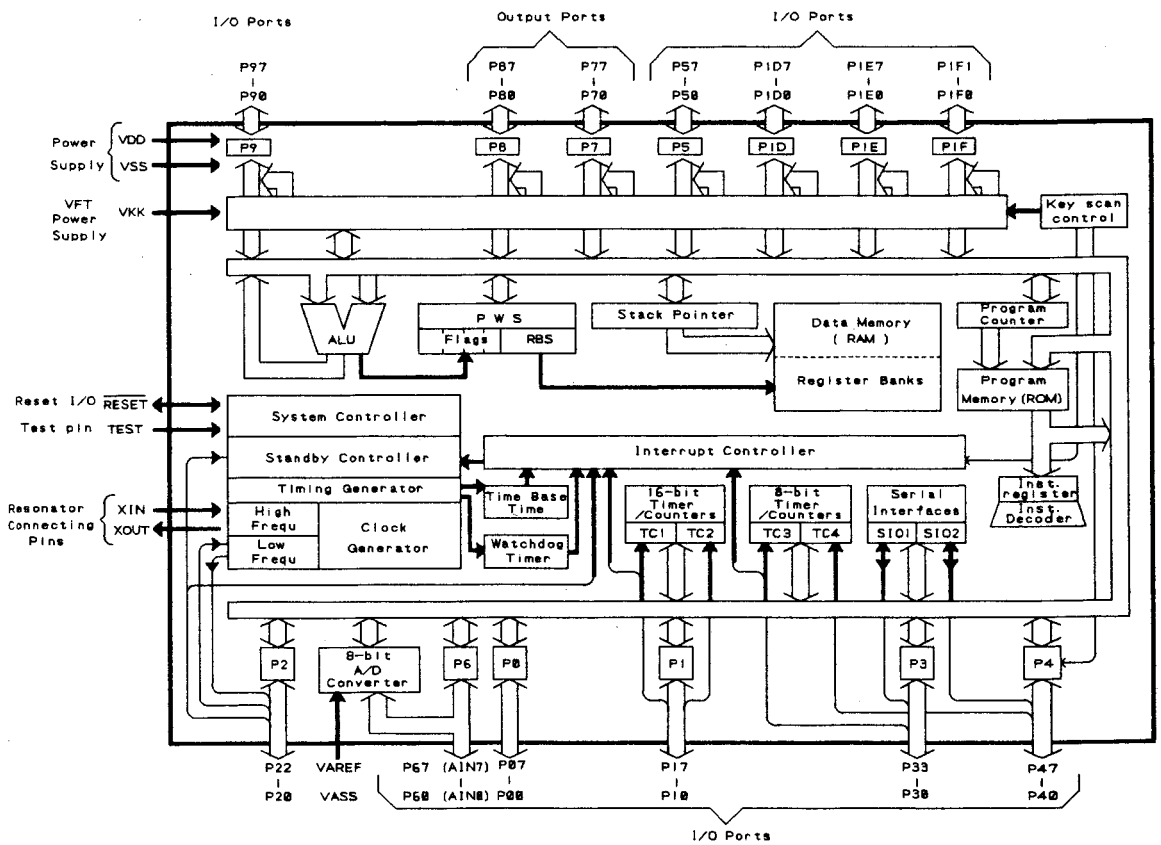
[U-COM FUNCTION : BVIANAM1229T]

PIN ASSIGNMENTS

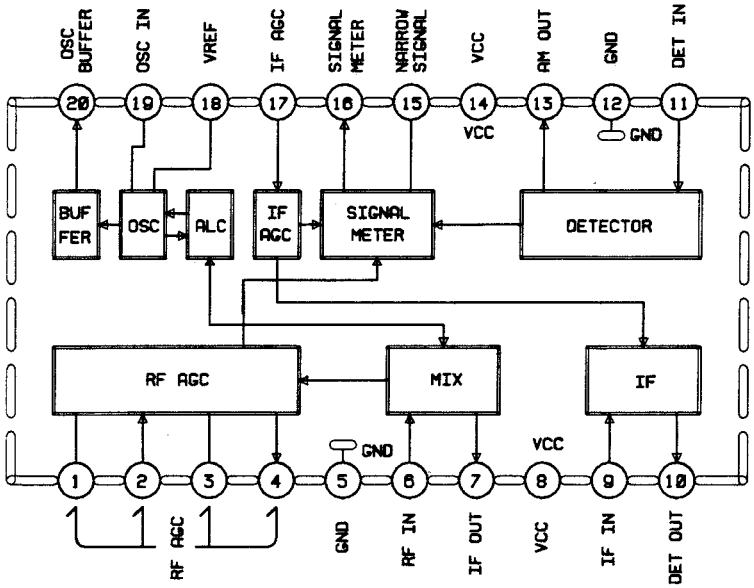
(TOP VIEW)



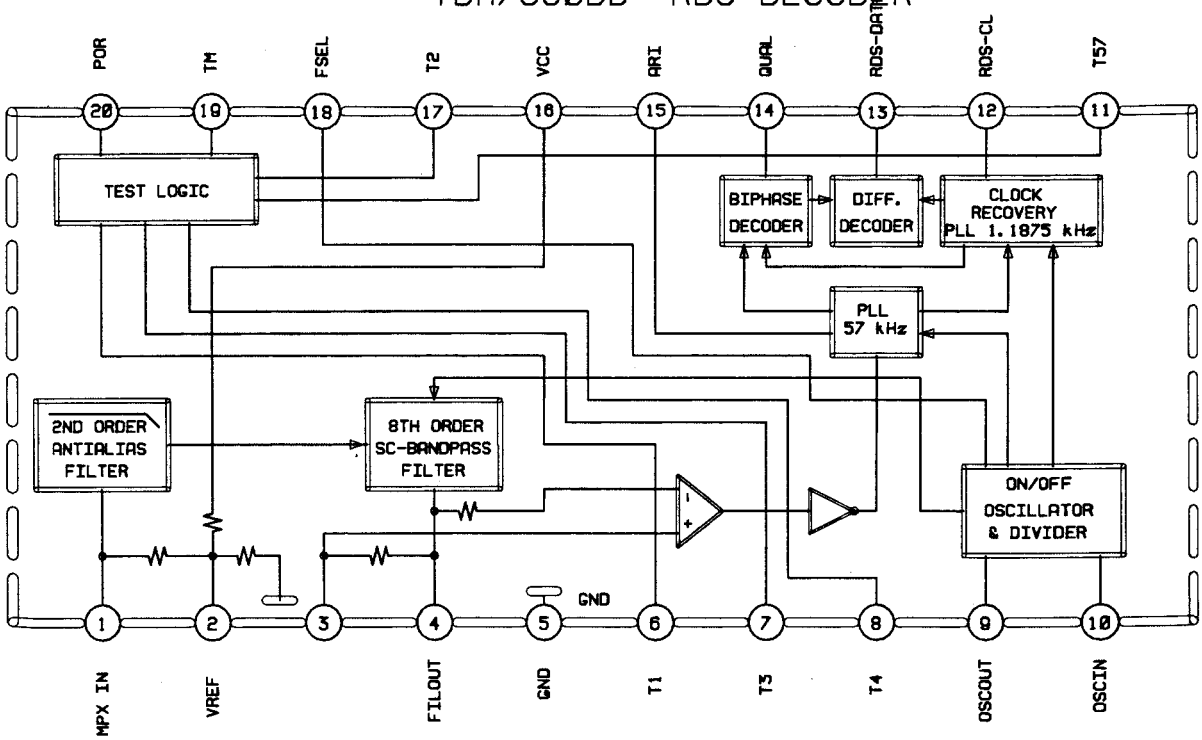
BLOCK DIAGRAM



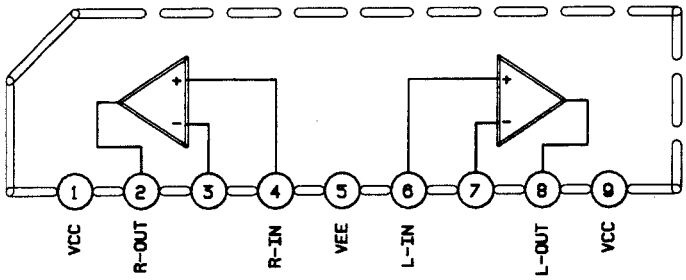
LA1135 AM RF &IF



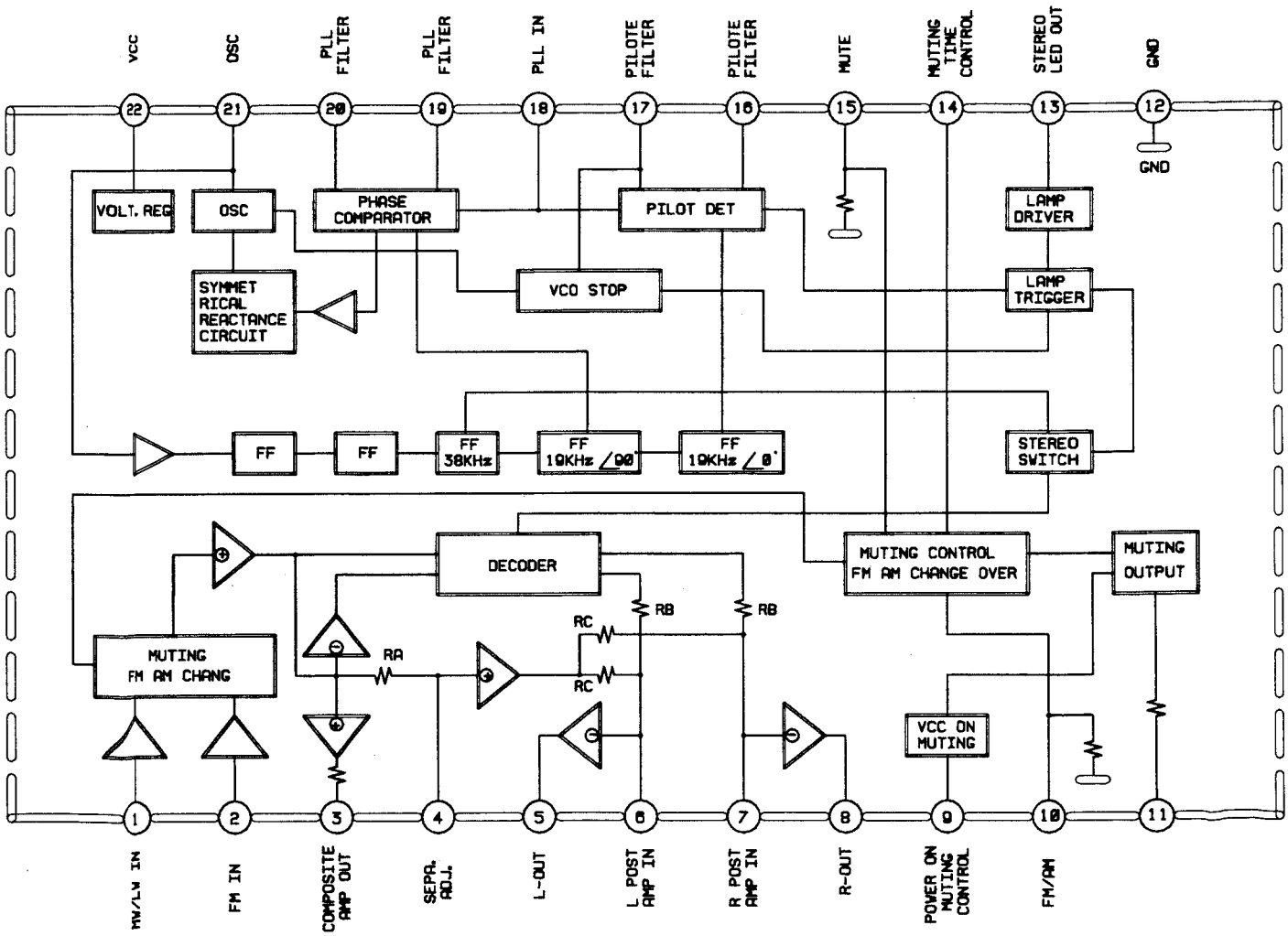
TDA7330BD RDS DECODER



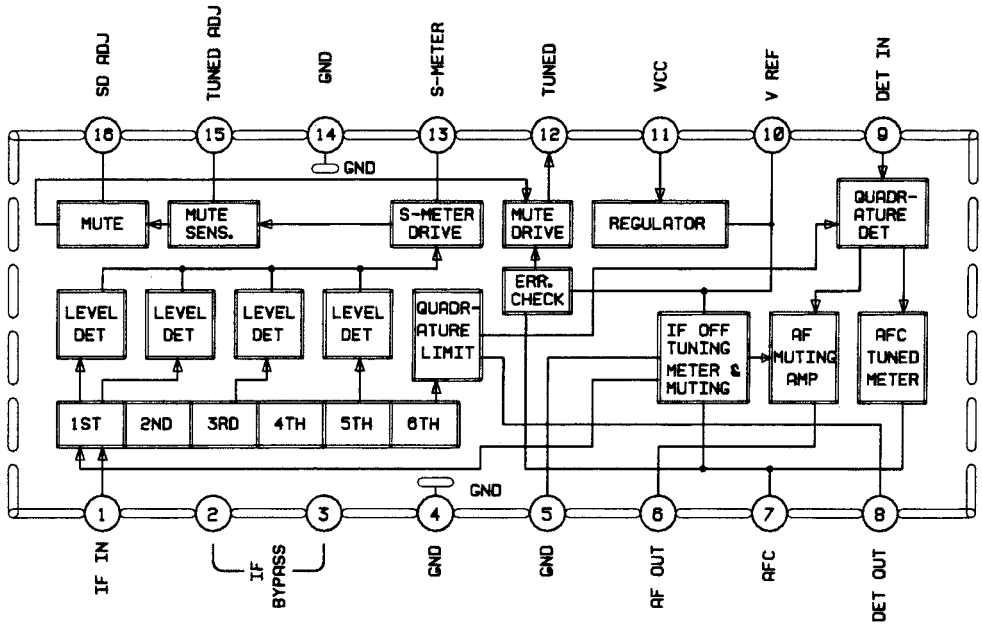
MC4558S



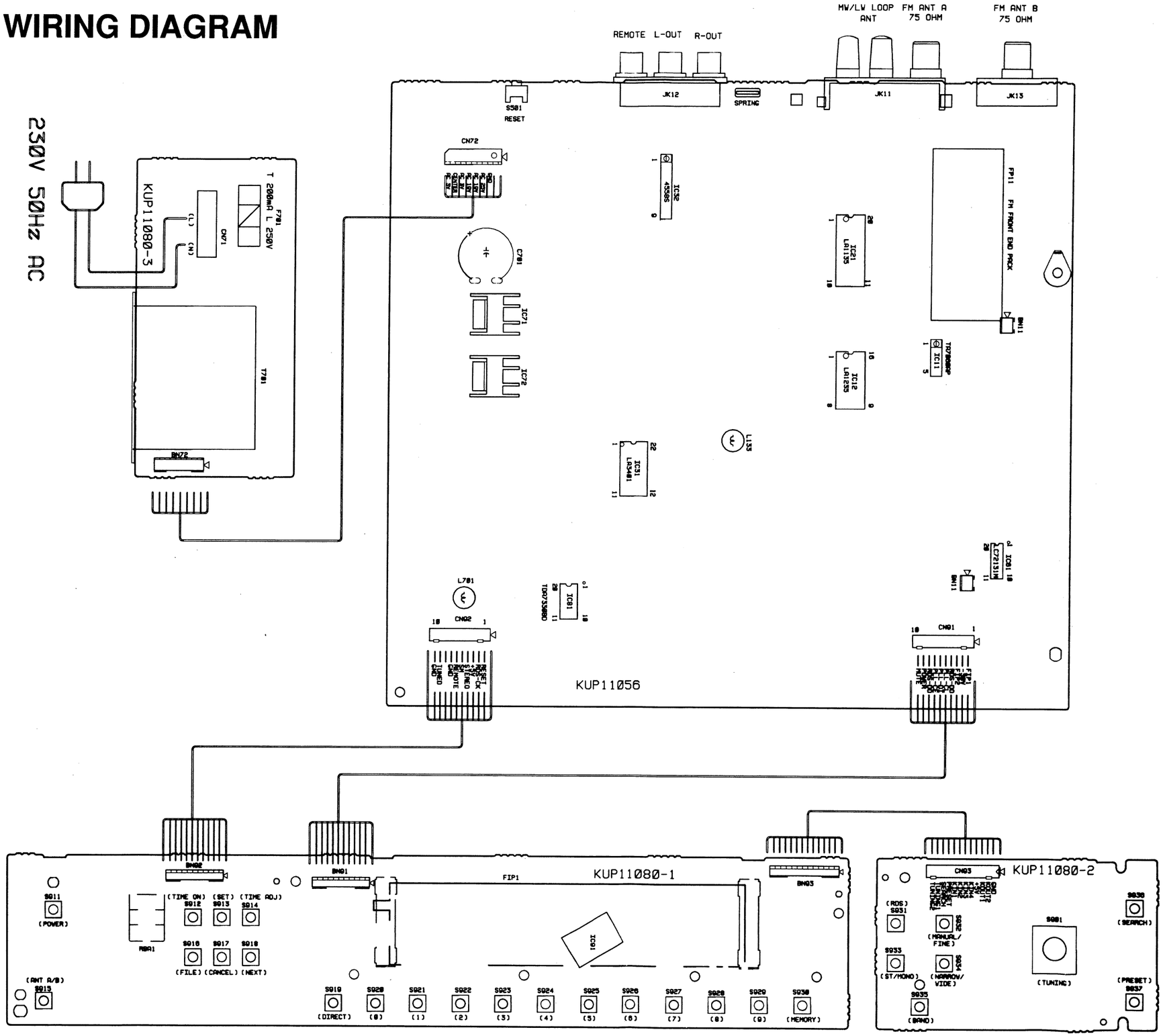
LA3401 MPX



LA1235 FM IF


SD ADJ
TUNED ADJ
GND
S-METER
TUNED
VCC
V REF
DET IN
16
15
14
13
12
11
10
9
GND
MUTE
MUTE SENS.
S-METER DRIVE
MUTE DRIVE
REGULATOR
QUADR-ATURE DET
ERR. CHECK
LEVEL DET
LEVEL DET
LEVEL DET
LEVEL DET
QUADR-ATURE LIMIT
IF OFF TUNING METER & MUTING
AF MUTING AMP
AFC TUNED METER
1ST
2ND
3RD
4TH
5TH
6TH
GND
1
2
3
4
5
6
7
8
IF IN
IF BYPASS
GND
GND
AF OUT
AFC
DET OUT

WIRING DIAGRAM



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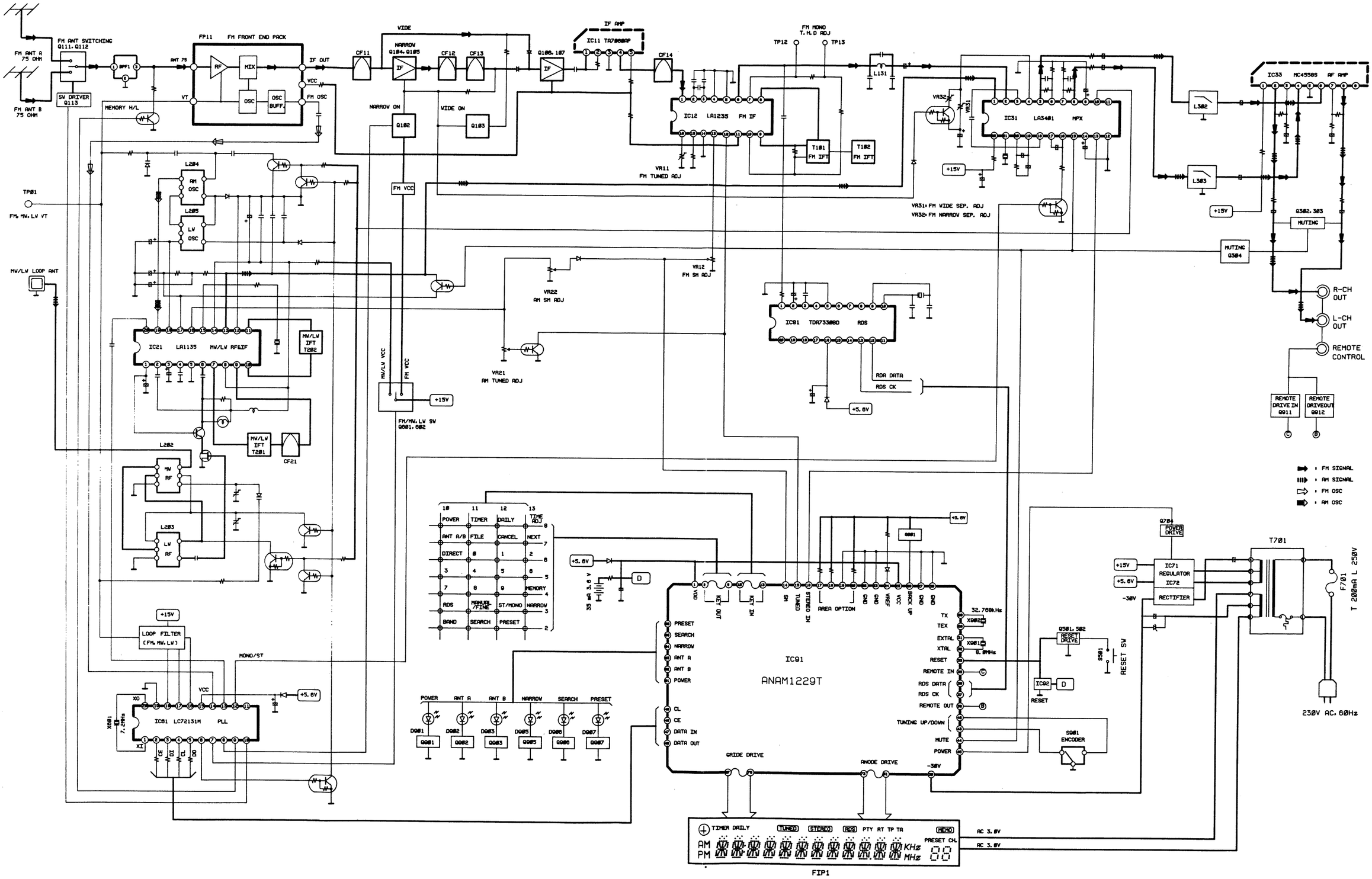
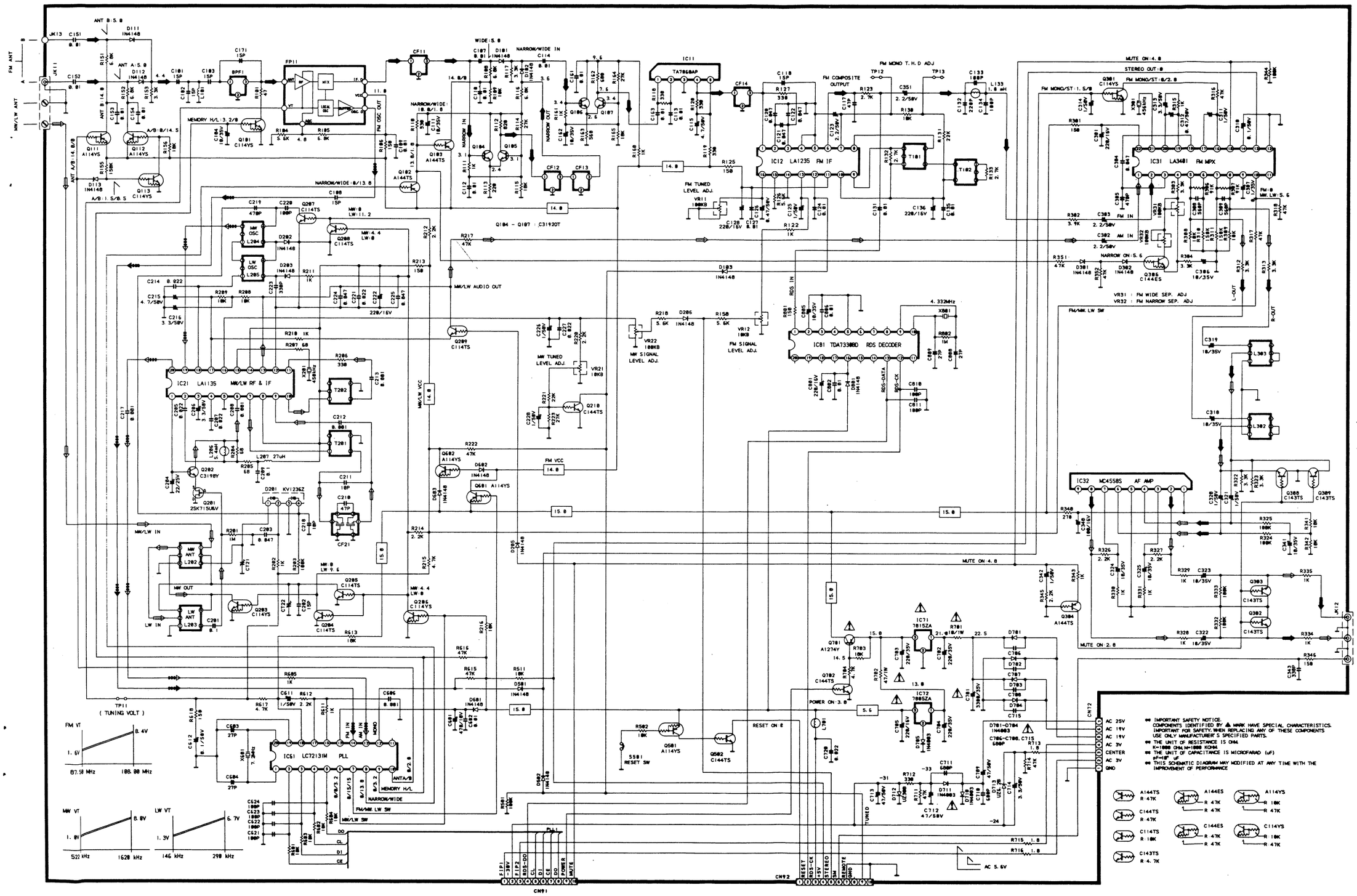


SCHEMATIC DIAGRAM



IC11 : TA7805AP

PIN	1	2	3	4	5
VOLT	1.4	1.4	GND	12.8	12.8

IC12 : LA1235

PIN	1	2	3	4	5	6
VOLT	2.8	2.8	2.8	GND	GND	2.8
PIN	7	8	9	10	11	12
VOLT	6.4	6.4	6.4	6.4	10.2	8/5.6
PIN	13	14	15	16		
VOLT	3.8	GND	8.6	3.4		

12:8 (TUNED ON) /5.6 (TUNED OFF)
13:8~4.8 (SIGNAL LEVEL)

IC21 : LA1135

PIN	1	2	3	4	5	6
VOLT	5.8	3.2	8.5	8.3	GND	2.8
PIN	7	8	9	10	11	12
VOLT	8.8	8.8	8.8	8.8	8.8	GND
PIN	13	14	15	16	17	18
VOLT	3.8	8.8	1.3	5.8	3.8	5.2
PIN	19	20				
VOLT	5.2	3.8				

16:8~5.8 (MW SIGNAL LEVEL)

IC31 : LA3401

PIN	1	2	3	4	5	6
VOLT	3.2	3.2	3.2	3.2	5.8	3.2
PIN	7	8	9	10	11	12
VOLT	3.2	5.8	3.2	8	OPEN	GND
PIN	13	14	15	16	17	18
VOLT	8.5	5.8	8	2.8	2.8	2.8
PIN	19	20	21	22		
VOLT	2.8	2.8	456k	11.6		

18:8 (FM) /5.5 (MW.LW)
13:8.5 (STEREO) /5.5 (MONO)

IC32 : MC4558S

PIN	1	2	3	4	5
VOLT	14.8	7.8	7.8	7.8	GND
PIN	6	7	8	9	
VOLT	7.8	7.8	7.8	OPEN	

IC61 LC72131M

PIN	1	2	3	4	5	6
VOLT	7.2M	CE	DI	CL	DO	PIN
PIN	7	8	9	10	11	12
VOLT	PIN	PIN	PIN	PIN	OPEN	PIN
PIN	13	14	15	16	17	18
VOLT	AMIN	FMIN	4.8	8.8	8.8	VT
PIN	19	20				
VOLT	GND	7.2M				

IC81 TDA7330BD

PIN	1	2	3	4	5	6
VOLT	2.2	2.2	1.5	OPEN	GND	OPEN
PIN	7	8	9	10	11	12
VOLT	OPEN	OPEN	OSC	OSC	OPEN	CLK
PIN	13	14	15	16	17	18
VOLT	DATA	OPEN	OPEN	5.6	OPEN	OPEN
PIN	19	20				
VOLT	OPEN	OPEN				

(R) OUTPUT

(L) OUTPUT

(REMOTE) CONTROL

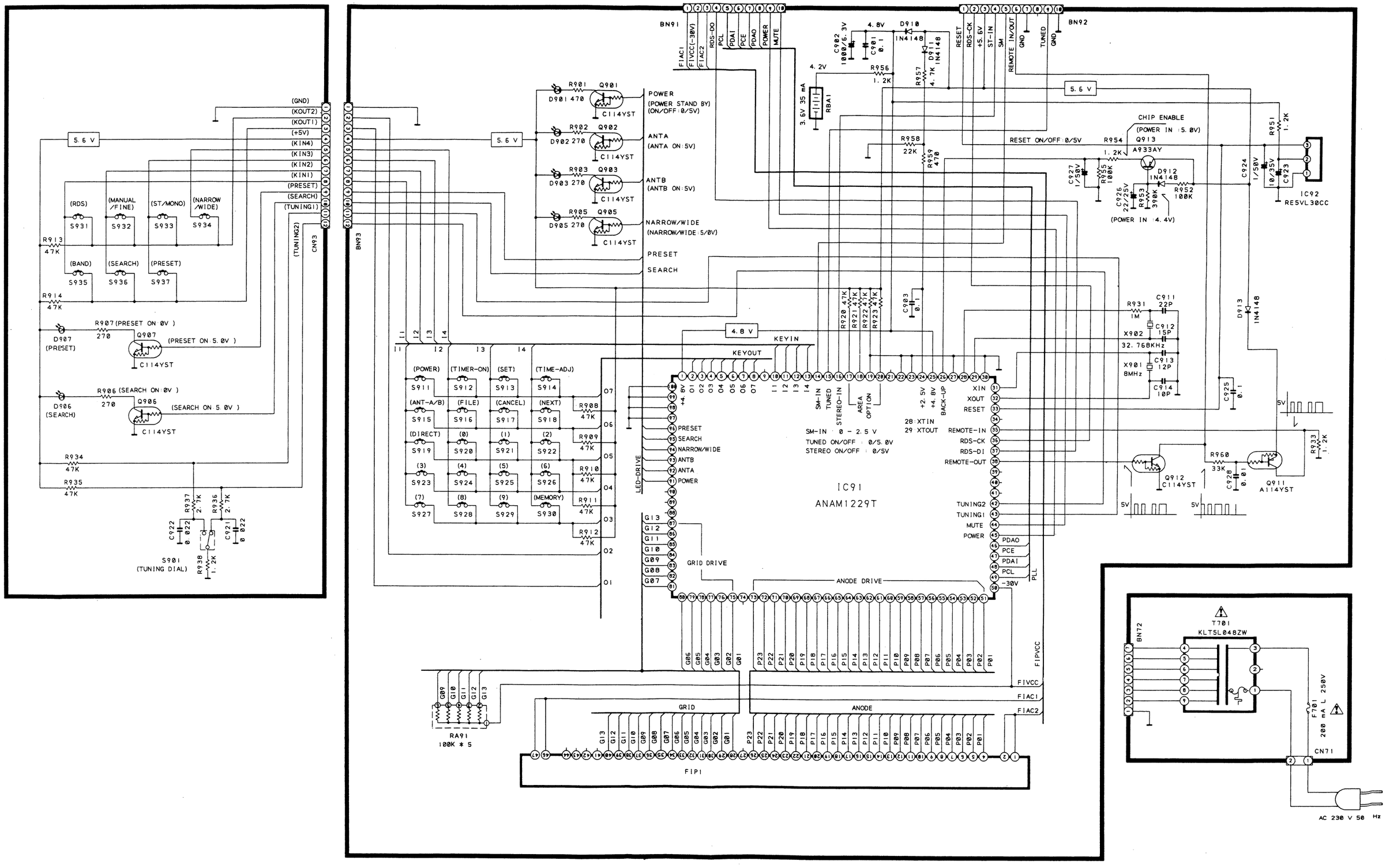
※ IMPORTANT SAFETY NOTICE.
COMPONENTS IDENTIFIED BY ⚠ MARK HAVE SPECIAL CHARACTERISTICS.
IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS
USE ONLY MANUFACTURER'S SPECIFIED PARTS.

※ THE UNIT OF RESISTANCE IS OHM.
K=1000 OHM, M=1000 KOHM.

※ THE UNIT OF CAPACITANCE IS MICROFARAD (uF)
pF=1P uF

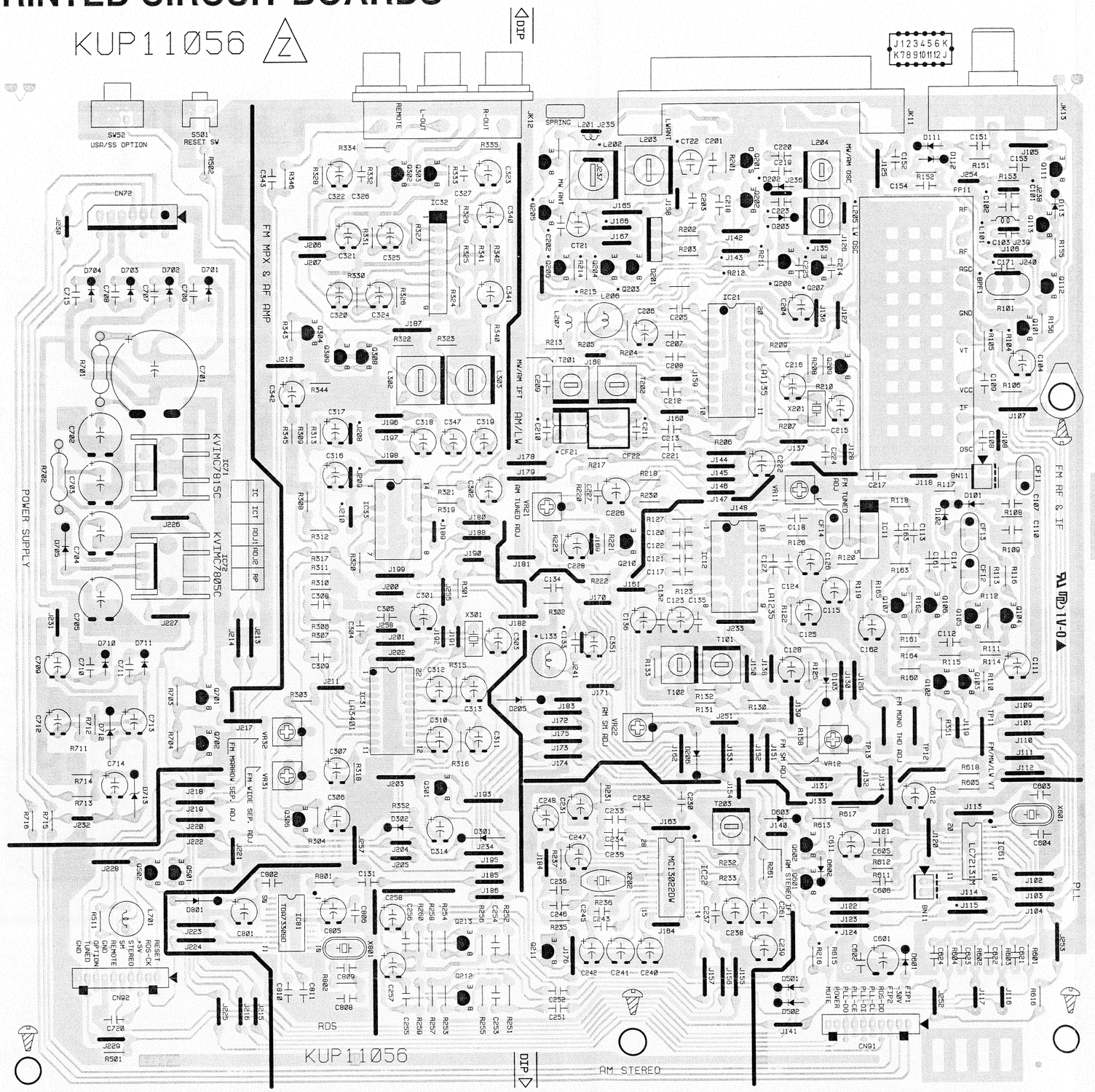
※ THIS SCHEMATIC DIAGRAM MAY MODIFIED AT ANY TIME WITH THE IMPROVEMENT OF PERFORMANCE

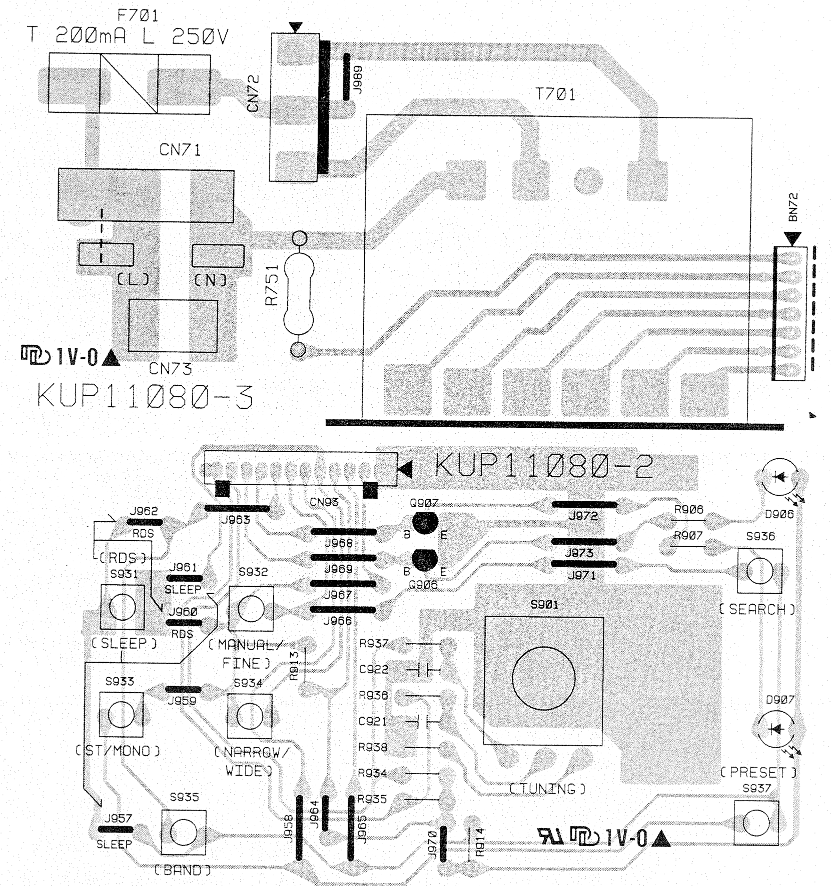
AT-1200 SCHEMATIC DIAGRAM (SUB PART)

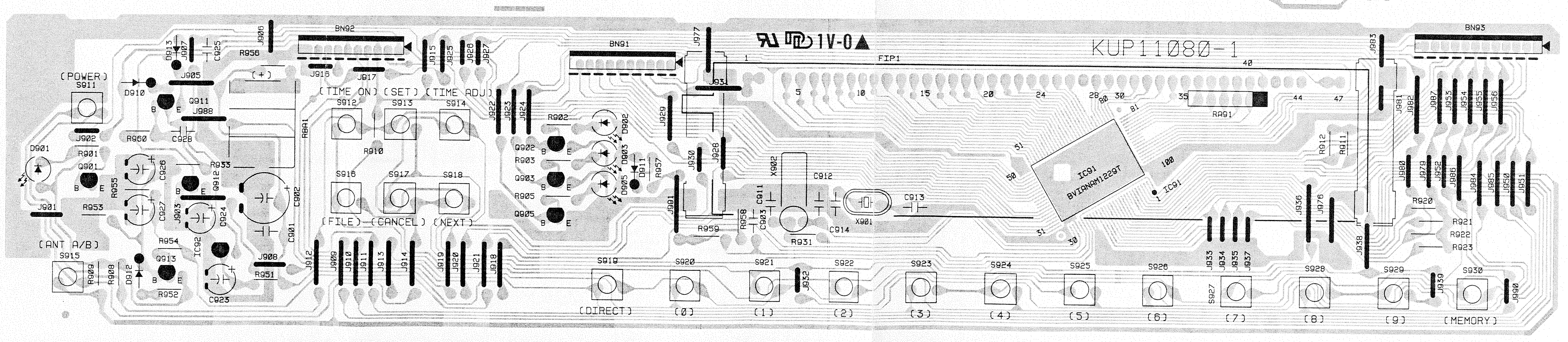


PRINTED CIRCUIT BOARDS

KUP11056 Z

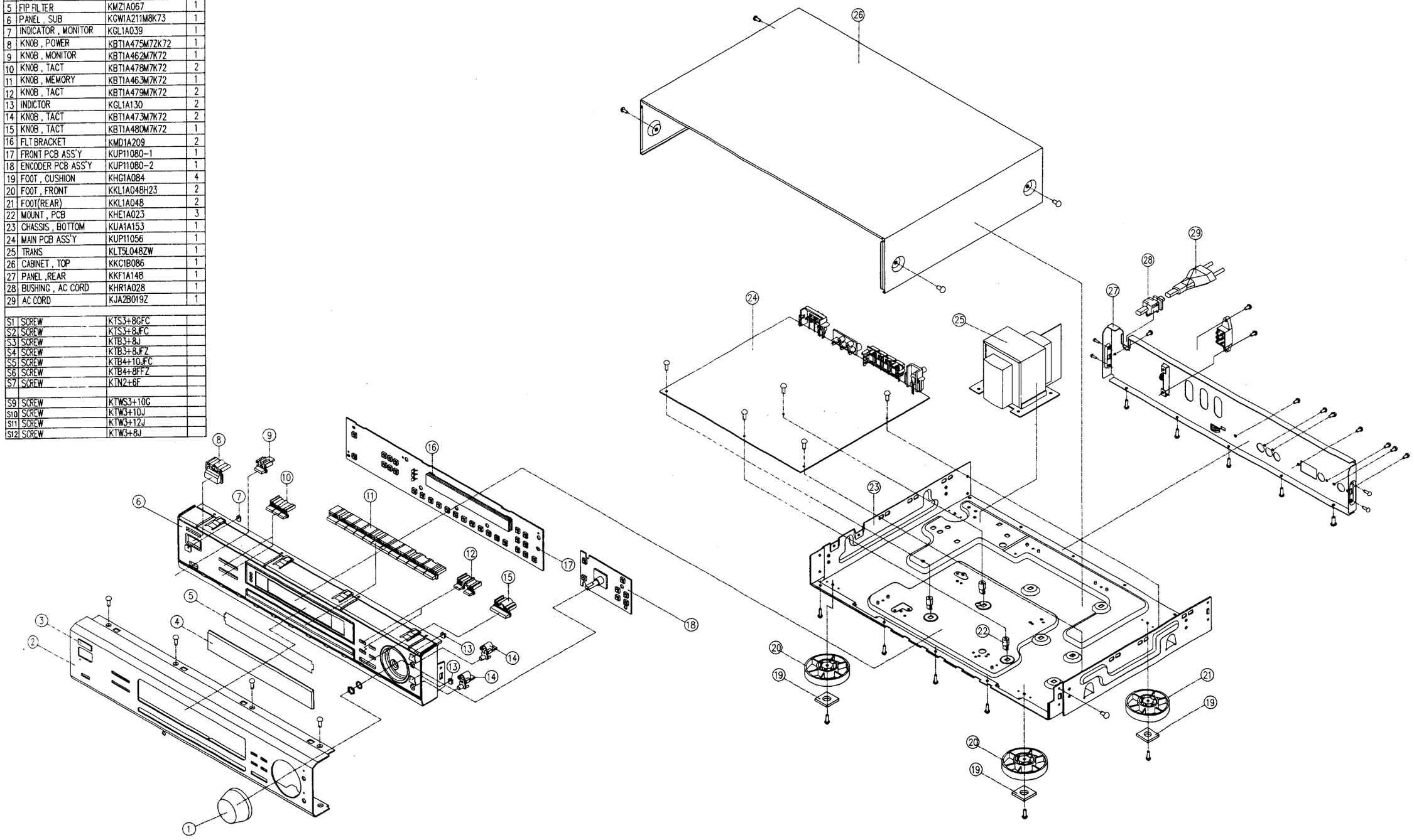



F701
T 200mA L 250V
CN72
T701
CN71
BN72
R751
(L)
(N)
CN73
1V-0
KUP11080-3
KUP11080-2
(RDS)
(SLEEP)
(MANUAL/FINE)
(SEARCH)
(ST/MONO)
(NARROW/WIDE)
(TUNING)
(PRESET)
(BAND)


KUP11080-1
1V-0
BN92
BN91
BN93
FIP1
(POWER)
(ANT A/B)
(TIME ON)
(SET)
(TIME ADJ)
(FILE)
(CANCEL)
(NEXT)
(DIRECT)
(0)
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(MEMORY)

EXPLODED VIEW

NO	DESCRIPION	PARTS-NO	Q,ty
1	KNOB , FUNCTION	KBN1A078M7K72	1
2	PANEL , FRONT	KKM1A068ZC16	1
3	BADGE	KGB1A045Z	1
4	WINDOW , FIP	KGU1A168Z	1
5	FIP FILTER	KMZ1A067	1
6	PANEL , SUB	KGW1A211M8K73	1
7	INDICATOR , MONITOR	KGL1A039	1
8	KNOB , POWER	KBT1A475M7ZK72	1
9	KNOB , MONITOR	KBT1A462M7K72	1
10	KNOB , TACT	KBT1A478M7K72	2
11	KNOB , MEMORY	KBT1A463M7K72	1
12	KNOB , TACT	KBT1A479M7K72	2
13	INDICTOR	KGL1A130	2
14	KNOB , TACT	KBT1A473M7K72	2
15	KNOB , TACT	KBT1A480M7K72	1
16	FLT BRACKET	KMD1A209	2
17	FRONT PCB ASS'Y	KUP11080-1	1
18	ENCODER PCB ASS'Y	KUP11080-2	1
19	FOOT , CUSHION	KHG1A084	4
20	FOOT , FRONT	KKL1A048H23	2
21	FOOT(REAR)	KKL1A048	2
22	MOUNT , PCB	KHE1A023	3
23	CHASSIS , BOTTOM	KUA1A153	1
24	MAIN PCB ASS'Y	KUP11056	1
25	TRANS	KLT5L048ZW	1
26	CABINET , TOP	KKC1B086	1
27	PANEL ,REAR	KKF1A148	1
28	BUSHING , AC CORD	KHR1A028	1
29	AC CORD	KJA2B019Z	1
S1	SCREW	KTS3+8GFC	
S2	SCREW	KTS3+8JFC	
S3	SCREW	KTB3+8J	
S4	SCREW	KTB3+8JFZ	
S5	SCREW	KTB4+10JFC	
S6	SCREW	KTB4+8FFZ	
S7	SCREW	KTN2+6F	
S9	SCREW	KTWS3+10G	
S10	SCREW	KTW3+10J	
S11	SCREW	KTW3+12J	
S12	SCREW	KTW3+8J	



PARTS LIST

ATTENTION

1. **When placing an order for parts, be sure to list the Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the dellvery of a wrong part may result.**
2. **Please make sure that Part No. is correct when ordering.**
   If not, a part different from the one you ordered may be delivered.
3. **Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.**

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
3. How to read the Parts List.

■ Resistor and Capacitor

Notes : · Part numbers are indicated for most mechanical parts.
Please use this part number for parts order.
· IMPORTANT SAFETY NOTICE.
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacture's specified parts.
· The unit of resistance is OHM(Ω)
K=1000(Ω), M=1000(KΩ)
· The unit of capacitance is MICROFARAD(μF).
· P=10^{-6}μF

■ Numbering System of Resistor

Example

KRD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
KRD:Carbon	20:1/5W	F:=±1%
KRG:Metal Oxide	25:1/4W	J:=±5%
	50:1/2W	K:=±10%
	1:1W	
KRF:Metal Cement	2:2W	
	3:3W	

■ Numbering System of Capacitor

Example

KCKT	1H	101	K	B
Type	Voltage	Value	Tolerance	Peculiarity

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
KCB:Ceramic	OJ:6.3V	1H:50V DC	C:±0.25pF
KCC:Ceramic	1A:10V	1:125V DC	G:±2%
KCK:Ceramic	1C:16V	KC:400V AC	J:±5%
KCFR:Semiconductor	1E:25V		K:±10%
KCQI:Polyester	1H:50V		Z:+80%, -20%
KCQP:Polypropylene	1V:35V		
KCQS:Polystyrol			

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉDE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT.

■ ELECTRICAL PARTS LIST

P. C BOARD BLOCK PART NO.

Part No.	Description
KOP11056B	MAIN PCB ASS'Y
KOP11080B	FRONT PCB ASS'Y

MAIN PCB BLK CONSISTS OF FOLLOWING P. C. B
* MAIN P. C. BOARD

FRONT PCB BLK CONSISTS OF FOLLOWING P. C. B
* FRONT P. C. BOARD
* SUB P. C. BOARD

1. MAIN PCB

REF NO.	PART NO.	DESCRIPTION
IC11	BVITA7060AP	IC, FM IF
IC12	BVILA1235	IC, FM IF
IC21	BVILA1135	IC, AM IF
IC31	BVILA3401	IC, MPX
IC32	KVIMC4558S	IC
IC61	BVILC72131M	IC, PLL
IC71	⚠ KVIMC7815CZA	IC, ASS'Y
IC72	⚠ KVIMC7805CZA	IC, ASS'Y
IC81	BVITDA7330BD	IC, RDS DECODER
Q101	KVTDTC114YST	T.R
Q102, 103	KVTDTA144TST	T.R
Q104~Q107	KVTKTC3192OT	T.R
Q111, 112	KVTDTA114YST	T.R
Q113	KVTDTC114YST	T.R
Q201	BVTKTK715T	F.E.T
Q202	KVTKTC3198YT	T.R
Q203	KVTDTC114YST	T.R
Q204, 205	KVTDTC114TST	T.R
Q206	KVTDTC114YST	T.R
Q207~Q209	KVTDTC114TST	T.R
Q210	KVTDTC144TST	T.R
Q301	KVTKVTDTC114YST	T.R
Q302, 303	KVTDTC143TST	T.R
Q304	KVTDTA144TST	T.R
Q306	KVTDTC144EST	T.R
Q308, 309	KVTDTC143TST	T.R
Q501	KVTDTA114YST	T.R
Q502	KVTDTC144TST	T.R
Q601, 602	KVTDTA114YST	T.R
Q701	⚠ KVTKTA1274YT	T.R
Q702	KVTDTC144TST	T.R
D101, 102	KVD1N4148MT	DIODE
D103	KVD1N4148T	DIODE
D111~D113	KVD1N4148MT	DIODE
D201	KVDKV1236	DIODE AM VARICAP
D202, 203	KVD1N4148MT	DIODE
D205, 206	KVD1N4148T	DIODE
D301	KVD1N4148T	DIODE
D302	KVD1N4148MT	DIODE
D501, 502	KVD1N4148MT	DIODE
D601~D603		
D701~D704	⚠KVD1N4003SRT	DIODE, RECT
D705	KVD1N4003ST	DIODE
D710, 711	⚠KVD1N4003SRT	DIODE, RECT
D712	KVDUZ30BMT	DIODE, ZENER
D713	KVDUZ6.2BMT	DIODE, ZENER
D801	KVD1N4148T	DIODE
CF11	BVFE107MX2HAT	FILTER, CERAMIC
CF12~CF14	BVFE107MZ2HAT	FILTER, CERAMIC
CF21	BVFSFZ450F	FILTER, CERAMIC
X201	BVFBFU450C4N	FILTER, CERAMIC
X301	BVFCSB456F11	RESONATOR, CERAMIC
X601	KOX07200A200C	CRYSTAL
X801	KOX04332A200C	CRYSTAL
BN11	KWZAT1200AK05	WIRE ASS'Y
JW11	KWE8202040AA	WIRE
JW12	KWZNT20001	WIRE ASS'Y
CN72	KJP07GA01ZM	WAFER
CN91, 92	KJP10GA19ZM	WAFER
CT21, 22	KCRA020S12	CAP, VARIABLE
C701	⚠ KCEA1VH332E	CAP, ELECT
FP11	KNVFTA4460H	FM FRONT END PACK
JK11	KJJ3S006Z	TERMINAL, ANT
JK12	KJJ4S003V	TERMINAL, OUTPUT 3P(SIL, BLK)
JK13	BJJ3G001Z	TERMINAL FM ANT (75 OHM)
R701	⚠ KRG1ANJ100H	RES, METAL OXIDE FILM
R702	⚠ KRG1ANJ470H	RES, METAL OXIDE FILM
S501	KST1A010Z	SW, TACT
BPF1	KVFBPMB8	B.P.F
T101	KLI3B024Z	FM, IFT1
T102	KLI3B025Z	FM, IFT2
T201	KLI2B108Z	I.F.T, AM1
T202	KLI2B109Z	I.F.T, AM2
T302, 303	KLM5B2-T	COIL, MPX
L101	KLA4Y106Z	COIL, FILTER
L151	KLQA183KW	COIL
L202	KLA2C004	COIL, AM ANT1
L203	KLA1B005	COIL, LW ANT
L204	KLO2B010	COIL, AM OSC
L205	KLO1B006	COIL, LW OSC
L206	KLQB542KLZ	COIL
L701	KLQB101KLZ	COIL, INDUCTOR

REF NO.		PART NO.	DESCRIPTION
VR11		BVN1PA104B01T	RES, SEMI FIXED
VR12		BVN1PA103B01T	RES, SEMI FIXED
VR21			
VR22		BVN1PA104B01T	RES, SEMI FIXED
VR31, 32			
		2. POWER PCB	
T701	⚠	KLT5L048ZW	TRANS POWER
BN72		KWZAT1200AK01	WIRE ASS'Y
F701		KJCFC5S	HOLDER, FUSE
	⚠	KBA2C0200TLE	FUSE (T200mA L250V)
		3. FRONT PCB	
IC91		BVIANAM1229T	IC, μ-COM
IC92		BVIRE5VL30CARZ	VOLTAGE DETECTOR
Q901~Q907		KVTDTC114YST	T.R
Q911		KVTDTA114YST	T.R
Q912		KVTDTC114YST	T.R
Q913		KVT2SA933SRT	T.R
D901		KVD342VCF02T085	L.E.D, RED
D902, 903		KVD342MCF02T085	L.E.D, GREEN
D905~D907			
D910~D913		KVD1N4148MT	DIODE
S911~S937		KST1A012ZT	SW, TACT
BN91		KWZAT1200AK02	WIRE ASS'Y
BN92		KWZAT1200AK03	WIRE ASS'Y
BN93		KWZAT1200AK04	WIRE ASS'Y
CN71		KJP02GA61ZP	WAFER
CN93		KJP12GA19ZP	WAFER
FIP1		BFLFIP13AM7R	F.I.P
RA91		KRGSN5X104J	RES, NETWORK
RBA1		BABGP35BVT3A3H	BATTERY, RECHARGEABLE
X901		KOX08000E160C	CRYSTAL
X902		BOX00032A120C	CRYSTAL
S901		BSR2A007Z	VR, ENCODER
		4. ACCESSORIES	
		KJS4M014Y	CORD, REMOTE CONTROL
		KJS4N001Y	CORD, AUDIO SIGNAL
		KSA1A007	ANT, FM WIRE(75 Ω)
		KSA1A008Z	ANT, AM LOOP

REF NO.	PART NO.	DESCRIPTION

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